

## Raman amplifier and control method

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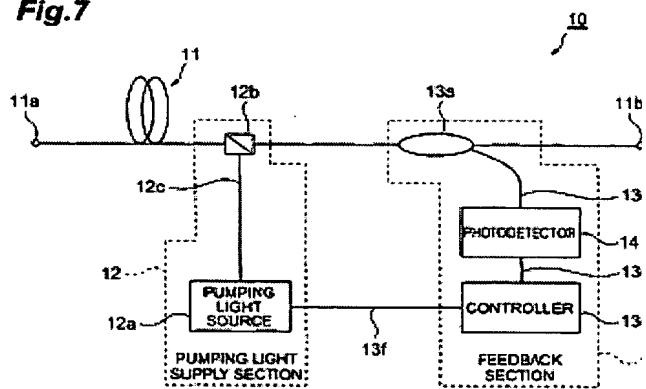
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### Abstract of EP1265381

The present invention provides a Raman amplifier and the like comprising a structure for keeping the flatness of power spectrum of Raman-amplified signal light. The Raman amplifier comprises an optical fiber for Raman-amplifying a plurality of signal channels of signal light having respective center optical frequencies different from each other; a pumping light supply section for supplying N (N being an integer of 2 or more) pumping channels of pumping light having respective center optical frequencies different from each other to the optical fiber; and a feedback section for detecting a part of the signal light Raman-amplified within the optical fiber when the pumping light is supplied thereto, and controlling the pumping light supply section such that the Raman-amplified signal light has a substantially flat power spectrum with respect to an optical frequency direction according to the result of detection. In particular, the feedback section divides the detected Raman-amplified signal light into N optical frequency ranges defined so as to include respective Raman amplification peaks as optical frequencies lower than respective center optical frequencies of the pumping channels of pumping light by an optical frequency shift of about 15 THz, and controls the pumping light supply section such that the Raman-amplified signal light has a power fluctuation of 2 dB or less in each of thus divided N optical frequency ranges.

**Fig.7**



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